

THE PREFERENCES OF POTENTIAL MARINE RESEARCH TOURISTS FOR DIFFERENT MARINE RESEARCH TOURISM PRODUCTS IN AUSTRALIA

Peter Wood
School of Business
James Cook University and Sustainable Tourism CRC, AUSTRALIA

and

Heather Zeppel
School of Business
James Cook University, AUSTRALIA

ABSTRACT

Marine research tourism is a form of marine tourism whereby marine research is an important part of the tourism attraction. Research was undertaken to further understand the preferences of potential marine research tourists for different marine research tourism products and benefits. Such information can be used to identify suitable markets, develop effective promotional campaigns, and design effective and different products. To achieve the research goal, an online survey (n=311) and benefit segmentation approach was used. Different marine research tourism products (n=12) were devised from a typological assessment of forty two marine research tourism ventures. Benefits (n=26) were devised from an assessment of related tourism types and discussions with key stakeholders. Results indicate that potential marine research tourists who regularly watch nature documentaries, volunteer, are a member of a conservation group, have a natural sciences background, SCUBA dive, snorkel or cetacean watch, have notably higher interest in more marine research tourism products. Furthermore, females and international survey respondents had notably higher interest in more marine research tourism products. The most important benefits for survey respondents were the opportunity to explore marine phenomena and discover new things (86%), and learn from marine researchers (86%). The least important benefits for survey respondents were an offshore boating or sailing experience (40%) and a high level of social interaction with others (46%). This paper identifies and affirms the existence of a set of likely relationships between marine research tourism market segments, preferred benefits and product types. Such information can be used for marine research tourism product design and marketing.

KEYWORDS: Marine, Research, Tourism, Benefits, Preferences, Products

This research is an outcome of a PhD project funded by the Sustainable Tourism Cooperative Research Centre, established by the Australian Commonwealth Government.

INTRODUCTION

This paper outlines preliminary results from research into the preferences of potential marine research tourists ($n = 311$) for different marine research tourism products and associated benefits. Specifically this paper reports on;

1. A benefit segmentation and online survey method for this research
2. The preferences of potential marine research tourists for 12 different marine research tourism products
3. The preferences of potential marine research tourists for 26 different benefits
4. The preferences of potential marine research tourists and their varying interest in 12 different marine research tourism products
5. The different market segments that prefer different marine research tourism products

Marine research tourism is defined as marine ecotourism where marine research is an important part of the tourism attraction (adapted from Benson, 2005). Marine research tourism products are defined as marine research tourism attractions, destinations, benefits and activities. In this paper, a marine research tourism venture must last for one or more days, be advertised publicly, take paying tourists or volunteers, and operate on a commercial basis (adapted from Ellis, 2003a).

BACKGROUND

As tourism advances and evolves as an industry, many new specialised forms of niche tourism have emerged. Ritchie, Carr, and Cooper (2003) reported on a trend in the western tourism market from the 1980s to the present, whereby travel motivations of tourists are changing from passive activities towards learning and broadening their horizons. Among these tourism markets is the marine research tourism market where marine research is an important part of the tourist attraction (Wood & Coghlan, 2008).

Cousins (2007) and Ellis (2003b) reported that the majority of regional or globally focused marine research tourism operators worldwide are organised from companies based in the UK or USA. Examples of companies that offer marine research tourism experiences are the Earthwatch Institute, The Oceanic Society, Conservation Volunteers Australia, the Tethys Institute, Global Vision International, and the Whale and Dolphin Conservation Society.

The primary conceptual framework for this research was to envisage marine research tourism as a combination of better known tourism typologies namely; marine, ecotourism, volunteer, scientific and educational tourism, wildlife, adventure and cultural tourism (adapted from Benson, 2005; Silberberg, 1995). Inherent within this conceptual framework is that combinations of many traits from those better known tourism typologies can be manifested and measured within marine research tourism ventures.

This paper seeks to understand the preferences of potential marine research tourists who are analogous to purposeful cultural tourists as described by McKercher and du Cros (2002). Purposeful marine research tourists place a moderate to high value on marine research as part of their overall decision to visit a destination, and they seek a relatively moderate to highly deep experience when participating in marine research tourism (adapted from McKercher & du Cros, 2002).

MARINE RESEARCH TOURISM IN AUSTRALIA

Based on discussions with marine research tourism stakeholders in Australia and searching the Internet, marine research tourism in Australia is mostly characterised by approximately 25 small and independent ventures. An exception to this is The Earthwatch Institute who offer two marine research tourism ventures in northern Australia. Ten of these twenty five enterprises operate in the Great Barrier Reef region of Australia, eleven operate in temperate Australia, five in north Western Australia, and two in the Gulf of Carpentaria. Ten of these twenty five enterprises are known to offer marine research tourism experiences on a regular basis, while the remainder offer marine research tourism experiences on a seasonal and/or one off basis. Ten enterprises offer marine research tourism experiences that last one or more weeks and seven enterprises offer predominantly marine education experiences that can last for one day. Twelve of these enterprises offer marine research tourism experiences that actively involve the tourist in official marine research activity while the others generally offer more passive, comfort orientated and/or educational experiences.

In hard currency terms, it is not known what tourism revenue is generated from marine research tourism in Australia. The cost for tourist participation in marine research tourism can range from \$A60 per day to \$A1, 100 per day (Wood, 2008a). Cost will depend on the venture's level of volunteer activity, comfort/hospitality, technology, and/or environmental remoteness. Marine research tourism frequently involves marine wildlife as the major research attraction for the tourist. Hence, the tourism revenue from a marine research tourism enterprise is in many ways, comparable to tourism revenue gained from marine tourism based on free ranging marine wildlife as described by Birtles, Valentine and Curnock (2001). Similarly, it is not known what marine research revenue is generated from marine research tourism in Australia. However, in many cases, marine research tourism ventures are known to offer frequent, ongoing and viable opportunities for professional marine researchers and enthusiasts to carry out marine research projects. In some cases, outcomes from these projects include academic papers (Birtles, Valentine, Curnock, Arnold and Dunstan, 2002; Arnold, and Birtles, 1999) that have influenced the conservation management of endangered dwarf minke whales and increased conservation based zoning of the Great Barrier Reef in Australia.

Notably, not all marine research tourism enterprises have a high focus on quality marine research or management outcomes. For example, other enterprises advertise marine research as an important part of their attraction for tourists, but focus on offering quality providing quality marine education, marine adventure and/or marine wildlife tourism experiences. Both cases focus less on implementing official marine research projects and often have less significant marine research outcomes. This can be a dilemma for marine research tourism enterprises that

seeks to involve marine researchers because most marine researchers will prefer only to be involved in ventures with high quality marine research (Wood & Coghlan 2008). Furthermore, marine researchers will also prudently prefer involvement in those marine research tourism enterprises that demonstrate economically sustainable markets and products (Ellis, 2003b).

A BENEFIT SEGMENTATION RESEARCH METHOD

Knowledge gained from market segmentation can enable tourism suppliers to identify suitable markets, design effective and different products, and develop effective and appropriate promotional campaigns (Blamey 1997; Garrod, 2008; Weaver 2001). Garrod (2008), Frochot and Morrison (2000) and, Murphy and Norris (2005) highlight benefit segmentation as a useful method to further understand the preferences of different groups of tourists for different products and benefits. For example, Murphy and Norris (2005) undertook benefit segmentation on visitor survey data from 2215 tourists to the Great Barrier Reef (GBR). Their results identified four notable market segments. Differences amongst these four market segments were attributed to the tourists' different preferences for different levels of involvement with the reef and desire for information and learning (Murphy & Norris, 2005).

Hence, to further understand the preferences of potential marine research tourists for different marine research tourism products and benefits, a benefit segmentation method was used. To achieve this, this research was required to develop;

1. An accessible and representative set of potential marine research tourists
2. A representative set of marine research tourism products
3. A conceptually sound set of benefits for marine research tourists
4. Survey questions to identify demographic characteristics of survey respondents

1. Identification of a representative set of prospective marine research tourists

Wood and Coghlan (2008) reported that much of the variation in the nature of a marine research tourism venture is due to the tourist's level of active involvement and required technical skills while on different types of marine research tourism ventures. Their research also determined that marine research tourism can appeal to a wide cross-section of potential tourists. For example, some marine research tourists may prefer a highly active, adventurous and remote experience with limited comfort, and some marine research tourists may prefer a less active, low risk, more educative and comfortable experience.

Research by Benson (2005), Clifton and Benson (2006), Cousins (2007) and, Weiler and Richins (1995), and a preliminary assessment of 42 marine research tourism venture web sites, generated a list of potential marine research tourists (Table 1). This assessment also indicated that potential marine research tourists are usually relatively highly educated, interested in marine research, and affluent enough to travel to and participate in marine research tourism. However, such information does not clarify, in any depth, what the preferences of potential marine research tourists are for different marine research tourism products and benefits.

Table 1: Potential Marine Research Tourists.

Marine wildlife tourists	Scuba divers	Nature enthusiasts
Adventure tourists	Volunteer tourists	Repeat marine research tourists
Marine resort tourists	Educational tourists	Trained marine researchers
Ecotourists	Gap year travelers	Marine tourism holiday makers
University students	Snorkellers	

2. Development of a representative set of marine research tourism products

Wood and Coghlan (2008) developed a classification methodology to classify marine research tourism ventures worldwide based on information obtained from the World Wide Web. This methodology was applied to classify 42 marine research tourism ventures worldwide into six classes (i.e. Classes 1, 2, 3, 4, 5 and 6) of marine research tourism ventures (Figure 1). The character of these six marine research tourism venture classes is largely explained by the underlying variation of seven main factors as illustrated in Figure 1.

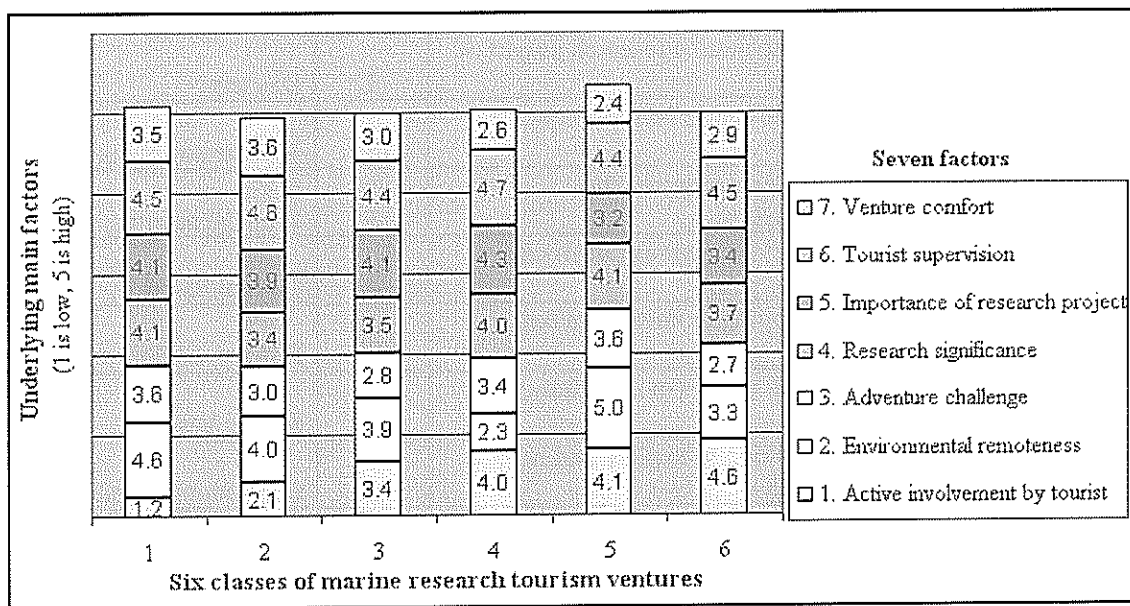


Figure 1: Seven Classes of Marine Research Tourism Ventures (Source: Wood & Coghlan, 2008).

In terms of the seven underlying main factors, the level of active involvement (Brown & Lehto, 2005) accounted for 32 % of the variation, while environmental remoteness (Orams, 1999) accounted for 16 %, the level of adventure (Swarbrooke, Beard, Leckie & Pomfret, 2003) for 10%, research significance of the marine research project that the tourist is involved with (7%), importance of the destination for the tourist when compared with the research project (Callanan & Thomas, 2005; Swarbrooke et al. 2003) (6%), tourist supervision by researchers (6%), and level of tourist comfort (4%).

12 one page examples of marine research tourism products within Australia (Table 2) were developed from this classification scheme. These example marine research tourism products (Wood, 2008a) are based on existing marine research tourism products both in Australia and elsewhere. It was these one page examples that survey respondents were asked to refer to when considering their interest in different marine research tourism products. When survey respondents were asked about their level interest in different marine research tourism product, they were asked to answer as if the cost of each product was not an obstacle to any participation.

Table 2: 12 Types of Marine Research Tourism Products used for Online Survey.

Name of example marine research tourism product	Class	Notable feature
1. A coral spawning research and adventure trip on a tropical coral reef	1	Live-aboard vessel
2. A submersible research expedition to Australia's Bon Hommey undersea ridge	1	A submersible
3. A bottlenose dolphin education holiday on the southern Australian coastline	2	Pub accommodation
4. Day trip to the reef with some marine research as part of the attraction	2	Day trip
5. Volunteer at a penguin rescue centre on the southern Australian coastline	3	Temperate setting
6. Research, education and adventure across the Whitsundays of tropical Queensland	3	Tropical setting
7. Work with marine turtles and indigenous rangers in remote northern Australia	4	Coastal based
8. Biodiversity and habitat mapping in north Western Australia	4	Rugged trip
9. Sail, volunteer and track blue whales in the Southern Ocean	5	Sailing vessel
10. A continuous sailing expedition to explore and help research the oceans of Australia	5	Continuous expedition
11. Survey coral reefs and help assess the impacts of climate change on coral reefs	6	Reef attraction
12. Volunteer and train at an Australian whale and dolphin research institute	6	Cetacean attraction

3. Development of a set of conceptually sound benefits for undertaking benefit segmentation

Table 3 shows a set of benefit criteria that were used to undertake effective benefit segmentation via an online survey of potential marine research tourists. This information was derived by applying the previous conceptual framework, and other information previously gained from recent discussions with 54 key stakeholders who had experience with marine research tourism in Australia. Survey respondents were asked to indicate if their preferences for different benefit criteria were; very important, important, somewhat important, or not very important.

Table 3: Benefit criteria that were used to Assess Tourist Preferences for Different Marine Research Tourism Products.

Benefits criteria for assessing tourist preferences	Reference
The importance of marine research program to the marine research community	Discussions with stakeholders
Learning from the marine researchers	Ritchie, Carr, and Cooper, 2003
A high level of involvement in the marine research program	Brown and Lehto, 2005; Callanan and Thomas, 2005
The high level of marine research training that you can receive	Ritchie, Carr, and Cooper, 2003
The high number of training days you can be involved with	Discussions with stakeholders
The high level of skill and knowledge needed to participate	Discussions with stakeholders
A high level of marine research education you can receive	Ritchie, Carr, and Cooper, 2003
The marine research technology or research facility that you can be involved with	Discussions with stakeholders
The experience of the marine researchers who are undertaking the research	Discussions with stakeholders
The venture's high level of involvement in conservation of marine wildlife or habitat	Ecotourism, 2008; Weaver, 2001
The destination (e.g. an island, a coral reef, the southern ocean, a sailing trip, a resort, etc.)	Discussions with stakeholders
The opportunity to have fun	Coghlan, 2006
The main vessel (e.g. ship or boat) that is used for travel or research (if applicable)	Discussions with stakeholders
The marine wildlife that is being researched	Discussions with stakeholders
A high level of adventure found on the venture	Swarbrooke et al., 2003
The duration of the trip (including any time on a boat)	Callanan and Thomas, 2005
The high quality of the marine researchers who are undertaking the research	Discussions with stakeholders

Table 3: Continued.

A high level of solitude, tranquillity, and closeness to nature whilst on the venture	Orams, 1999
A high level of social interaction with others on the venture	Orams, 1999
A high level of interaction with the local people	Ecotourism, 2008; Weaver, 2001
Avoiding sun burn, cold exposure and/or sea sickness	Discussions with stakeholders
A high level of self sufficiency needed while on the venture	Orams, 1999
An opportunity to receive recognised marine research education and training	Ritchie, Carr, and Cooper, 2003
There is an offshore boating or sailing experience	Orams, 1999
The opportunity to scuba dive	Garrod, 2008
The opportunity to explore marine phenomena and discover new things	Ritchie, Carr, and Cooper, 2003

4. Development of survey questions to identify demographic characteristics of survey respondents

To complement this information, a range of survey questions were designed to identify market segment characteristics of survey respondents (Table 4).

Table 4: Survey Questions to Identify Market Segment Characteristics of Survey Respondents.

Market segment characteristic
What country and town are you presently from?
Are you male or female?
What is your age group?
What is your occupation?
When on a marine based holiday, what group of potential marine research tourists (Table 1) would you generally describe yourself as?
What is your formal educational background?
When at home, how many times per week would you watch television nature documentaries?
Do you have a working background in natural science or the environment?
Are you a supporter of an environmental conservation organisation?
Are you an active member of a volunteer organisation?
What is your whale or dolphin watching experience?
What is your snorkelling experience?
What is your SCUBA diving experience?

Develop, implement, analyse and interpret an online survey

Based on the information in Tables 1 to 4, an online survey instrument was devised (Wood, 2008b). The survey request was e-mailed out to at least 1800 people across Australia and the world that were likely to match the profile of potential marine research tourists that is shown in Table 1. The group comprised the researcher's associates and their colleagues, and a set of specific market segments namely; repeat marine research tourists, SCUBA divers, marine researchers and university students. The great majority of the researcher's associates could be broadly typified as professional working people or university students, and as people who are not directly involved in marine research or marine tourism. Organisations contacted included the Project Aware Foundation, Reef Check Australia, the Australian Marine Science Association, Flinders University, James Cook University, Melbourne University, Murdoch University, University of Queensland, the CSIRO, and the Australian Institute of Marine Science.

At the time of this paper, 311 people had completed the online survey. The age, gender, education and nationality demographic breakdown of survey respondents is in Table 5. There were 199 Australian and 109 international survey respondents. International survey respondents were from North America (n = 42), Central and South America (n = 16), SE Asia (n = 16), Europe (n = 22), and South Pacific, Africa and China (n = 13).

Table 5: Age, Gender, Education and Nationality Demographics of Survey Respondents.

Age	Gender		Education			Nationality	
	F	M	High School	Technical college	University	Australian	International
18 – 30	62	33	2	1	93	67	29
31 – 40	39	43	5	6	71	49	33
41 – 50	32	42	9	6	59	46	28
51 – 60	17	33	7	7	36	34	16
61 -70	2	5	1	1	4	3	3
Total	152	156	24	21	263	199	109
Not stated	3		1	0	2	1	2

RESULTS AND DISCUSSION

Descriptive statistical analysis was undertaken on the survey results to identify the;

1. Preferences of potential marine research tourists for the 12 different marine research tourism products
2. Preferences of potential marine research tourists for 26 different benefits
3. The benefit preferences of survey respondents and their varying interest in 12 different marine research tourism products
4. Market segments that prefer different marine research tourism products

The statistical methods used to derive the results for C and D included a discriminant analysis and heat map analysis. For results C, the discriminant analysis technique used the survey respondents' preference ranking of the benefit criteria (Table 3) as variables and the marine research tourism product names (Table 2) as the factors. For results D, the discriminant analysis technique used the survey respondents' preference ranking of marine research tourism products (Table 2) as variables and the market segment criteria (Table 4) as the factors. Results from the discriminant analysis represent the average value of the variables for each of the different factors. A heat map analysis was applied on the discriminant analysis results so as to better communicate the low to high variability of results through a colour scheme ranging from blue (i.e. low value) to tan (i.e. moderate) and yellow (i.e. high).

A. Preferences of potential marine research tourists for 12 different marine research tourism products

Table 6: The Preferences of Survey Respondents (n = 311) for 12 different Marine Research Tourism Products.

Marine research tourism venture	Very interested	Possibly interested	Not interested
2. A submersible research expedition to Australia's Bon Hommey undersea ridge	57%	18%	14%
1. A coral spawning research and adventure trip on a tropical coral reef	55%	31%	7%
9. Sail, volunteer and track blue whales in the Southern Ocean	53%	26%	13%
7. Work with marine turtles and indigenous rangers in remote northern Australia	52%	30%	13%
11. Survey coral reefs and help assess the impacts of climate change on coral reefs	52%	32%	11%
4. Day trip to the reef with some marine research as part of the attraction	44%	31%	22%
6. Research, education and adventure across the Whitsundays	44%	31%	17%
10. A continuous sailing expedition to explore and help research the oceans of Australia	43%	37%	15%
12. Volunteer and train at an Australian whale and dolphin research institute	41%	30%	23%
3. A bottlenose dolphin education holiday on the southern Australian coastline	37%	41%	16%
8. Biodiversity and habitat mapping in north Western Australia	34%	36%	22%
5. Volunteer at a penguin rescue centre in southern Australia	32%	36%	23%

Table 6 describes the overall preferences of potential marine research tourists (n = 311) for 12 types of marine research tourism products. Notably 57% survey respondents were very interested in product 2 (i.e. the submersible expedition) and 55% were very interested in product 1 (i.e. coral spawning research). Just 32% of survey respondents were very interested in product 5 (i.e. volunteering at a penguin rescue centre). Only 7% of survey respondents were not interested in product 11 (i.e. surveying coral reefs) and 23% of survey respondents were not interested in product 5 (i.e. volunteering at a penguin rescue centre).

B. Preferences of potential marine research tourists for different benefits

Table 7 lists the 5 top and bottom benefits preferred by survey respondents (n = 311). In terms of very high or high importance to survey respondents, the top benefits were the opportunity to explore marine phenomena and discover new things (88%), learning from marine researchers (86%), the quality (83%) and experience (82%) of marine researchers, and the opportunity to have fun (80%). The bottom benefits included; an offshore boating or sailing experience (40%), social interaction (46%), skill and knowledge (46%), a high level of self sufficiency (53%), and a high number of training days (54%). The latter results could be interpreted as a preference by many survey respondents for a less active marine research tourism experience that requires less skill, knowledge, training, education, self sufficiency and social interaction.

Table 7: The 5 Top and Bottom Benefits Preferred by Survey Respondents (n=311).

Top 5	Benefit	Important or very important
1	The opportunity to explore marine phenomena and discover new things	88%
2	Learning from the marine researchers	86%
3	The high quality of the marine researchers who are undertaking the research	83%
4	The experience of the marine researchers who are undertaking the research	82%
5	The opportunity to have fun	80%
Bottom 5		
22	The high number of training days you can be involved with	54%
23	A high level of self sufficiency needed while on the venture	53%
24	The high level of skill and knowledge needed to participate	46%
25	A high level of social interaction with others on the venture	46%
26	There is an offshore boating or sailing experience	40%

C. The benefit preferences of survey respondents and their varying interest in 12 different marine research tourism products

Table 8: Notable Benefit Preferences for Survey Respondents who were Very Interested in Participating in One or More of the 12 Marine Research Tourism Products.

Benefit	Product Number											
	1	2	3	4	5	6	7	8	9	10	11	12
The opportunity to SCUBA dive	3.0	3.0	2.8	2.8	2.7	2.9	2.8	2.7	2.9	2.9	3.1	3.0
There is an offshore boating or sailing experience	2.4	2.3	2.3	2.3	2.4	2.5	2.5	2.5	2.5	2.7	2.4	2.4
Avoiding sun burn, cold exposure and/or sea sickness	2.0	1.9	2.2	2.2	2.1	2.1	2.1	1.9	2.0	1.9	2.0	2.1
The destination (e.g. an island, a coral reef, the southern ocean, a sailing trip, a resort, etc.)	3.1	3.1	3.1	3.2	3.0	3.1	3.1	3.0	3.1	3.1	3.0	2.9
The main vessel (e.g. ship or boat) that is used for travel and research (if applicable)	2.7	2.7	2.7	2.8	2.6	2.7	2.7	2.5	2.6	2.6	2.6	2.7

Note: Key. A value of 2 (blue) is somewhat important, 3 (tan) is important and 4 (bright yellow) is very important.

Table 8 shows the notable benefit preferences for those survey respondents who were, on average, very interested in participating in one or more of the 12 marine research tourism products. For example, those survey respondents who were very interested in products 5 and 8 (i.e. both land based ventures) placed less importance on the opportunity to SCUBA dive and the main vessel that is used for travel and research. Those survey respondents who were very interested in product 10 (i.e. A continuous sailing expedition) placed a higher level of importance (i.e. 2.7) in an offshore boating or sailing experience. Notably those survey respondents who were very interested in all products considered avoiding sun burn, cold exposure and/or sea sickness as only somewhat important. Additionally, all survey respondents who were very interested in all products considered the destination to be important when choosing a marine research tourism venture.

Table 9 shows the notable benefit preferences for those survey respondents who were, on average, not interested in one or more of the 12 products. For example, those survey respondents who were not interested in products 1, 2 and 10 (i.e. all open ocean expeditions) placed more importance on avoiding sun burn, cold exposure and/or sea sickness. Those survey respondents who are not interested in product 10 (i.e. a continuous sailing expedition) considered an offshore boating or sailing experience as least important (1.7). Furthermore, those survey respondents who were not

interested in products 1 and 11 (i.e. coral reef ventures) considered SCUBA diving as least important (i.e. values 2.0 and 2.1).

Survey respondents who were not interested products 3 and 4 (i.e. ventures with less active involvement and less research significance) considered a high level of involvement in the marine research program, conservation of wildlife, and marine research education and training, as most important. Additionally, survey respondents who were not interested in product 11 (i.e. survey reefs on a tropical island and assess the impacts of climate change) placed the least importance on involvement in the marine research program, conservation of wildlife, and marine research education and training.

Table 9: Notable Benefit Preferences for Survey Respondents who were Not Interested in Participating in One or More of the 12 Marine Research Tourism Products.

Benefit	Product Number											
	1	2	3	4	5	6	7	8	9	10	11	12
Avoiding sun burn, cold exposure and/or sea sickness	2.6	2.5	1.8	1.9	2.0	1.9	1.9	2.3	2.3	2.4	2.3	2.2
The opportunity to SCUBA dive	2.0	2.5	2.7	2.7	2.7	2.5	2.4	2.7	2.6	2.6	2.1	2.4
A high level of involvement in the marine research program	2.6	2.9	3.1	3.1	2.9	2.9	2.7	2.8	2.8	2.8	2.5	2.7
Your high level of involvement in conservation of marine wildlife or habitat	2.6	2.8	3.1	3.0	2.9	2.9	2.8	3.0	3.0	3.0	2.5	2.9
The high level of marine research training that you can receive	2.5	2.8	2.8	2.8	2.7	2.4	2.6	2.5	2.6	2.6	2.3	2.5
A high level of solitude, tranquillity, and closeness to nature whilst on the venture	2.5	2.5	2.7	2.6	2.6	2.4	2.3	2.6	2.5	2.4	2.8	2.6
A high level of marine research education you can receive	2.6	2.6	2.7	2.7	2.7	2.5	2.5	2.5	2.6	2.6	2.3	2.5

Note: Key. A value of 2 (blue) is somewhat important, 3 (tan) is important and 4 (bright yellow) is very important.

D. Market segments that prefer different marine research tourism products

Table 10 shows the level of nature documentary viewing by survey respondents and their notable levels of interest in different marine research tourism products. Results indicate that when compared with survey respondents who do not watch nature documentaries (i.e. not at all), more frequent viewers (i.e. 3 or more times per week) of nature documentaries were notably more interested in a larger range of different marine research tourism products. For example, those survey respondents who did not watch nature documentaries at all were notably less interested (i.e. 1.7) in product 12 (i.e. Whale and dolphin research centre) than those who watched nature documentaries more than 5 times per week (i.e. 2.7).

Table 10: Level of Nature Documentary Viewing by Survey Respondents and their different Levels of Interest in the 12 Marine Research Tourism Products.

Product	Number of survey respondents			
	53	177	56	25
	Not at all	Once or twice	3 to 5 times	More than 5 times
1. A coral spawning research venture	2.1	2.4	2.6	2.6
2. A submersible research expedition	2.1	2.3	2.5	2.4
3. A bottlenose dolphin holiday	1.9	2.1	2.5	2.4
4. A day trip to the reef	2.0	2.1	2.4	2.4
5. Volunteer at a penguin rescue centre	1.7	2.0	2.1	2.3
6. Research, education and adventure trip	1.9	2.2	2.5	2.4
7. Marine turtles and indigenous rangers	2.1	2.3	2.5	2.6
8. Biodiversity and habitat mapping	1.9	2.0	2.1	2.5
9. Sail, volunteer and track blue whales	2.0	2.4	2.5	2.4
10. A continuous sailing expedition	2.0	2.2	2.4	2.2
11. Survey coral reefs and climate change	2.1	2.3	2.5	2.8
12. A whale and dolphin research institute	1.7	2.1	2.4	2.7

Note: Key. A value of 2 (blue) is possibly interested and 3 (bright yellow) is very interested.

Table 11 shows the notable levels of interest of volunteer, conservation group and natural sciences background market segments for different marine research tourism products. The broad distribution of tan and yellow colours on Table 12 show that survey respondents with a volunteer, conservation and/or a natural sciences background are notably more interested in all marine research tourism products. Particularly, those survey respondents with a volunteer background had higher interest in four products (i.e. products 1, 2, 9 and 11). Those survey respondents that were members of a conservation group and/or a natural sciences background were most interested in products 1, 7 and 11. Those survey respondents without a volunteer, conservation or natural sciences background showed most interest in products 1, 6, 7, 9 and 11 (i.e. coral reef, whale or turtle ventures). All survey respondents had lower interest in both products 5 and 8 (i.e. land based ventures that could involve some endurance).

Table 11: Volunteer, Conservation Group and Natural Sciences Market Segments, of Survey Respondents and their different Levels of Interest in the 12 Marine Research Tourism Products.

Product No.	Number of survey respondents					
	110	180	122	189	175	134
	A volunteer	Not a volunteer	Member of conservation group	Not a member of a conservation group	A natural sciences background	Not a natural sciences background
1.	2.6	2.3	2.5	2.2	2.5	2.3
2.	2.4	2.3	2.4	2.1	2.5	2.1
3.	2.2	2.1	2.2	2.1	2.1	2.2
4.	2.2	2.2	2.2	2.2	2.2	2.2
5.	2.1	1.9	2.1	1.9	2.0	2.0
6.	2.3	2.2	2.3	2.2	2.3	2.2
7.	2.4	2.3	2.4	2.2	2.4	2.3
8.	2.1	2.0	2.1	2.0	2.2	1.9
9.	2.5	2.3	2.4	2.2	2.4	2.3
10.	2.3	2.1	2.2	2.1	2.3	2.1
11.	2.5	2.3	2.5	2.2	2.5	2.2
12.	2.2	2.1	2.2	2.0	2.1	2.1

Note: Key. A value of 2 (blue) is possibly interested and 3 (bright yellow) is very interested. See Table 10 for product names.

Table 12 shows the interest levels of gender and nationality based market segments for different marine research tourism products. In broad terms, females appear to be more interested in marine research tourism. Specifically, females were significantly more interested in products 3, 4, 5, 7 and 12. Males were notably more interested in product 2 (i.e. a submersible expedition). When compared with Australians, International survey respondents appear to be also more interested in marine research tourism. The exceptions to this are products 5, 8 and 10 where both groups show similar levels of interest. To qualify these results, it should be noted that many international survey respondents had higher levels of SCUBA diving experience when compared with Australian survey respondents.

Analysis of the preferences of survey respondents with different levels of cetacean (i.e. whale and dolphin), snorkelling or SCUBA watching experience produced some interesting results. As cetacean watching experience increased from no experience to 11 or more experiences, there was a notable increase in interest in products 1, 3, 9, 11 and 12 (i.e. all cetacean watching, the coral spawning, and coral reef survey ventures). Conversely, for the same range, there was almost no increase in interest in products 4, 5, 7 and 10 (i.e. day trip to the reef, penguin rescue, marine turtles and continuous sailing expedition). With snorkelling, as experience increased from no snorkeling experience to 51 times or more, there was a notable increase in interest in products 1, 2, 6 and 11 (i.e. the three coral reef ventures and the submersible expedition).

For SCUBA diving, as experience increased from no experience to 101 times or more, there was a notable increase in interest in products 1, 2, and 11 (i.e. two specialised SCUBA experiences and the submersible expedition). Notably, for snorkelling and SCUBA diving, there was an increase in the level of interest (e.g. average interest level 2.05 to 2.27) for all marine research tourism products as the survey respondent's experience increased from none to one or more experiences. For this range, the highest increases in interest for snorkelling were for products 4, 6 and 7 (i.e. day trip to reef, research - education and adventure, and marine turtle ventures). Similarly, the highest increases in interest for SCUBA diving were products 1, 6 and 11 (i.e. coral spawning, research - education and adventure, and survey coral reef ventures).

Table 12: Gender and Nationality Market Segments of Survey Respondents and their different Levels of Interest in the 12 Marine Research Tourism Products.

Number of survey respondents				
	152	156	111	200
Product	F	M	International	Australian
1. A coral spawning research venture	2.4	2.4	2.6	2.3
2. A submersible research expedition	2.3	2.0	2.3	2.1
3. A bottlenose dolphin holiday	2.2	1.8	2.1	1.9
4. A day trip to the reef	2.4	2.3	2.5	2.3
5. Volunteer at a penguin rescue centre	2.5	2.2	2.4	2.3
6. Research, education and adventure trip	2.0	2.1	2.0	2.1
7. Marine turtles and indigenous rangers	2.3	1.9	2.3	2.0
8. Biodiversity and habitat mapping	2.3	2.1	2.3	2.1
9. Sail, volunteer and track blue whales	2.4	2.2	2.3	2.3
10. A continuous sailing expedition	2.2	2.1	2.2	2.2
11. Survey coral reefs and climate change	2.2	2.4	2.4	2.2
12. A whale and dolphin research institute	2.3	2.2	2.3	2.2

Note: Key. A value of 2 (blue) is possibly interested and 3 (bright yellow) is very interested.

SUMMARY

This paper identifies and affirms the existence of a set of likely relationships between marine research tourism market segments, preferred benefits and product types. For example, market characteristics such as nature documentary viewing, membership of volunteer groups, professional background, gender, and SCUBA experience are shown to significantly influence the interest of survey respondents (n=311) for different marine research tourism products. Similarly, the preferences of survey respondents for different benefits such as a marine exploration and discovery, SCUBA diving, volunteering, educational, social, and/or fun experience are shown to notably influence their interest in different marine research tourism products. Such outcomes also demonstrate the effectiveness of using a benefit segmentation approach for identifying the preferences of potential marine research tourists.

This research contributes new information about the preferences of potential marine research tourists for different marine research tourism products and benefits. It is possible that prior to this research, much of this information could have seemed reasonable to those with some knowledge of the marine research tourism topic. For example, it could have been reasonable to propose that many potential marine research tourists would like to have the opportunity to explore marine phenomena and discover new things, or frequent viewers of nature documentaries, cetacean watchers, snorkellers or scuba divers would have higher interest in more marine research tourism products. However, the significance of the above research is that these and other propositions have been empirically tested. The implication of this is that such information can be used by marine research tourism suppliers to help identify suitable markets, design effective and different products, and develop effective and appropriate promotional campaigns.

REFERENCES

- Arnold, P. & Birtles, A. 1999, *Towards sustainable management of the developing dwarf minke whale tourism industry in Northern Queensland*, Technical Report No. 27, CRC Reef Research Centre, Australia.
- Benson, A. (2005). Research tourism: professional travel for useful discoveries. In M. Novelli (Ed.), *Niche Tourism: Contemporary Issues, Trends and Cases*. (pp. 133-144). Amsterdam: Elsevier.
- Birtles, A., Valentine, P., Curnock, M., Arnold, P. & Dunstan, A. (2002). *Incorporating visitor experiences into ecologically sustainable dwarf minke whale tourism in the northern Great Barrier Reef*. CRC Reef Research Centre Technical Report No. 42, CRC Reef Research Centre, Australia. 65 pp.
- Birtles, A., Valentine, P. & Curnock, M. (2001). *Tourism based on free-ranging marine wildlife. Opportunities and responsibilities*. Wildlife Tourism Research Report Series: No.11. Status Assessment of Wildlife Tourism in Australia Series. CRC Sustainable Tourism. Australia. 62 pp.
- Blamey, R. K. (1997). Ecotourism: The search for an operational definition. *Journal of Sustainable Tourism*, 5(2), 109-122.
- Brown, S. & Lehto, X. Y. (2005). Traveling with a purpose: Understanding the motives and benefits of volunteer vacationers. *Current Issues of Tourism*, 8(6), 479-496.
- Callanan, M. & Thomas, S. (2005). Volunteer tourism - Deconstructing volunteer activities with a dynamic environment. In M. Novelli (Ed.), *Niche Tourism: Contemporary Issues, Trends and Cases*. (pp. 183-202). Amsterdam: Elsevier.
- Clifton, J., & Benson, A. (2006). Planning for sustainable ecotourism: The case for research ecotourism in developing country destinations. *Journal of Sustainable Tourism*, 14(3), 238-254.
- Coghlan, A. (2006). Volunteer tourism as an emerging trend or an expansion of ecotourism? A look at potential clients's perceptions of volunteer tourism organisations. *International Journal of Non Profit and Voluntary Sector*, 11, 225-237.
- Cousins, J.A. (2008). The role of UK-based conservation tourism operators. *Tourism*

- Management*, 38(4), 1020-1030.
- Ecotourism-Australia. (2008). Ecotourism Australia web site. Retrieved 12 May, 2008, from <http://www.ecotourism.org.au/neap.asp>.
- Ellis, C. (2003a). When volunteers pay to take a trip with scientists: Participatory Environmental Research Tourism (PERT). *Human Dimensions of Wildlife*, 8, 75-80.
- Ellis, C. (2003b). Participatory environmental research in tourism: A global view. *Tourism Recreation Research*, 28, 45-55.
- Garrod, B. (2008). Research Market Segments and Tourist Typologies for Diving Tourism. In B. Garrod and S. Gossling (Eds.), *New Frontiers in Marine Tourism – Diving Experiences, Sustainability and Management*. (pp. 31-48). Oxford: Elsevier.
- Frochot, I. & Morrison, A.M. (2000). Benefit segmentation: A review of its applications to travel and tourism research. *Journal of Travel and Tourism Marketing*, 9(4), 21-44.
- McKercher, B. & du Cros, H. (2002) *Cultural Tourism: The Partnership between Tourism and Cultural Heritage Management*. New York: Hayworth Hospitality Press.
- Murphy, L. & Norris, A. (2005) Understanding Great Barrier Reef visitors: Segmentation according to reef trip benefits. *Tourism in Marine Environments*, 1 (2), 71 – 87
- Orams, M. (1999). *Marine Tourism: Development, impacts and management*. New York: Routledge.
- Pearce, P. L. (2005). *Tourist Behaviour: Themes and Conceptual Schemes*. Clevedon, Buffalo, Toronto: Channel View Publications.
- Ritchie, B. W., Carr, N. & Cooper, C. (2003). Managing educational tourism. In C. Cooper, Hall, M.C, Dalton, T. (Ed.), *Aspects of Tourism 10*. Clevedon: Channel View Publications.
- Silberberg, T. (1995) Cultural tourism and business opportunities for museums and heritage sites. *Tourism Management* 16 (5), 361–365.
- Swarbrooke, J., Beard, C., Leckie, S. & Pomfret, G. (2003). *Adventure Tourism - The New Frontier*. Burlington MA: Butterworth-Heinemann.
- Weaver, D. (2001). *Ecotourism*. Brisbane: John Wiley & Sons.
- Weiler, B. & Richins, H. (1995). Extreme, extravagant and elite: A profile of ecotourists on Earthwatch expeditions. . *Tourism Recreation Research*, 20(1), 29-36.
- Wood, P. (2008a). Descriptions of 12 marine research tourism products. Retrieved 26 May, 2008, from www.marine-research-tourism.com/12_products.pdf
- Wood, P. (2008b). Marine research tourist survey. Retrieved 26 May, 2008, from www.marine-research-tourism.com/Survey.php
- Wood, P. & Coghlan A. (2008). The conceptual nature of marine research tourism and key stakeholder involvement in marine research tourism. *Refereed paper, in CAUTHE, Proceedings of the 18th Annual CAUTHE Conference*, Richardson, S., Fredline, L., Patiar, A., and Ternel, M., (Eds.) CD-ROM, Griffith University, Gold Coast, 11-14 February.

2008 ISTTE Conference Proceedings

**The Future Success
of Tourism:
New Directions,
Challenges and
Opportunities**

Clontarf Castle Hotel,
Dublin, Ireland
September 30 ~
October 2, 2008



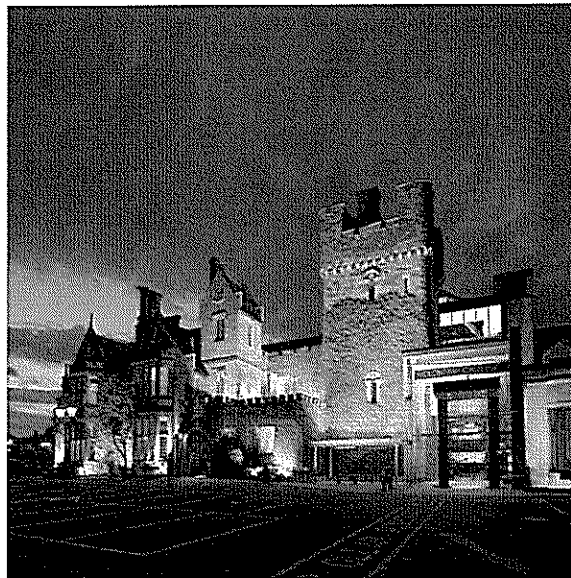
ISTTE

International Society of Travel and Tourism Educators

Conference Chair: Dominic Dillane
Proceedings Editor: Clark Hu



*The Future Success of Tourism:
New Directions, Challenges and Opportunities*



*Annual Conference Proceedings of Workshop, Research and Academic
Papers – Volume XX*

*Clontarf Castle Hotel, Dublin, Ireland
September 30 – October 2, 2008*

Clark Hu, Ph.D., Editor

*The Future Success of Tourism:
New Directions, Challenges and Opportunities*



The Twenty-Seventh Annual Conference

*Annual Conference Proceedings of Workshop, Research and
Academic Papers – Volume XX*

*Clontarf Castle Hotel, Dublin, Ireland
September 30 – October 2, 2008*

*Clark Hu, Ph.D.
Editor*

Cover Image

Courtesy of Getty Images and Corbis.
Copyright remains with Getty Images and Corbis.

Disclaimer

The research reported in this conference proceedings remains the responsibility of the individual researchers/authors.

Publishing Office

International Society of Travel & Tourism Educators
23220 Edgewater
St Clair Shores, MI 48082
United States

Telephone/Fax: 586-294-0208
E-mail: joannb@istte.org
Web site: www.istte.org

ISSN 1091-9120

Advice: To cite any papers in this Proceedings, please follow the following example (in APA editorial format):

Hu, C., & Meng, F. (2008). A trend visualization analysis of bilateral international tourism development. In C. Hu (Ed.), Proceedings of the 2008 Annual International Society of Travel and Tourism Educators (ISTTE) Conference, September 30 - October 2, 2008, in Dublin, Ireland (Vol. 20, pp. 93-107). St Clair Shores, MI: International Society of Travel and Tourism Educators.